CORROSION

Official Publication

NATIONAL ASSOCIATION
OF
CORROSION ENGINEERS

•

VOLUME 7

JANUARY THROUGH DECEMBER

1951

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EDITORIAL AND BUSINESS OFFICES

919 MILAM BLDG., HOUSTON, TEXAS

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INDEX TO TECHNICAL MATERIAL

CORROSION

VOLUME 7

JANUARY 1 – DECEMBER 31

1951

C O N T E N T S

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INDEX HEADINGS

From the Abstract Filing Index Compiled by the Abstract Committee, National Association of Corrosion Engineers

(Revision as of June, 1951)

History of Index—The project of originating a topical index under which abstracts dealing with corrosion can be classified was begun by the NACE Abstract Committee in January, 1947, under the chairmanship of Mrs. Lorraine Voigt Peloubet. This index, in the revision dated June, 1951, is the one used herein for the purpose of cross-indexing technical articles published in CORROSION in the year 1951.

Description of Index—First column of the tabular index contains the titles and authors of technical articles published in CORROSION arranged chronologically by year and month (Volume and Issue) and the number of the page on which the listed article begins. Discussions are listed only when separated from the article to which they refer. Each of the eight major columns to the right is numbered to correspond to the primary subject in the Abstract Filing Index. Within each of the major columns are numbered columns corresponding to the sub-topic or secondary subject of the topical index. When the subject matter of an article falls into the topic indicated by any of the first two index numbers, a check mark is placed in the column. Under the alphabetical index of authors, each author's contributions are indexed by year and page number.

How to Use Index—To discover the subject matter of a known article, first find the article in the left hand column, search horizontally to the check mark(s), then to column headings to learn the secondary and primary topical classification numbers; then refer to the index to learn the topic corresponding to the numbers. To search for a topic in an unknown article, first refer to the index and note the two numbers corresponding to the topic. Refer to the column headings of the table, find the major and minor columns corresponding to the number, and trace down vertically until a check mark is reached, then search horizontally to the title of the article to which the check mark refers.

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CORROSION, Vol. 7, 1951

CORROSION ABSTRACTS

As Published in

CORROSION

Volume 7–1951

Official Publication

NATIONAL ASSOCIATION OF CORROSION ENGINEERS

919 Milam Building, Houston 2, Texas

PAGE NUMBERS BY MONTHS

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3. Non-ferrous Metals and Alloys—Heavy	20		46		86	100		178			242		3
4. Non-ferrous Metals and Alloys—Light			48		88	102		180	206		243	260	4
5. Metals—Multiple or Combined Discussion						102			206			263	5
6. Non-Metallic Materials	21		50		92	102			207			263	6
7. Duplex Materials	22											264	7
8. Other													8
7 EQUIPMENT													
1. Engines, Bearings, and Turbines	22		52		92	104						264	1
2. Valves, Pipes, and Meters			52		92								2
3. Pumps, Compressors, Propellers, and Impellers			52		92								3
4. Heat Exchangers	24		52		92	104							4
5. Containers	24					104							5
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7. Electrical Telephone and Radio	26					106							7
8. Wires and Cables (non-electrical)	26												8
9. Specifications													9
10. Other	26		52			106							10
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1. Group 1	26				93								1
2. Group 2			52			106	134						2
3. Group 3			54			106	134						3
4. Group 4			54	73	93	108	134						4
5. Group 5	28					110	139						5
6. Group 6						110	140						6
7. Group 7													7
8. Group 8						110	140						8
9. Group 9	28				95	112	142						9
10. Group 10	29						143						10
	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	

1. See also Page 62.
2. See also Page 121.
3. List of Industries.

1. Air conditioning, architecture and building, refrigeration, sewage and water.
2. Communications, power.
3. Agriculture, beverage, dairy, fermentation, food, sugar, starch.
4. Fuel, gases, petroleum refining and production, rubber.
5. Ceramics, glass, pulp and paper, wood products.
6. Laundry, soap and detergents, textiles.
7. Graphic arts, instruments, jewelry, photography.
8. Chemical manufacturing, distilled liquor, electroplating, leather, tanning, metal fabrication, pharmaceuticals.
9. Aircraft, automotive, pipe line, railroad, shipping.
10. Explosives, metallurgy, mining, ordnance, war materials, other.

ERRATA—Corrosion—Vol. 6 and 7

(These corrections are printed in conformity with the American Standards Association recommendations for the publication of errata in such a way they may be clipped from this page (which is blank on the reverse side) and pasted over the areas in which the errors appear.)

●

Recommended Practices for Surface Preparation of Steel. TP-6G Surface Preparation for Organic Coatings. *Corrosion*, **6**, No. 8, 276-282 (1950) August.
Page 281, Col. 1, Line 20. Change to read

---

2) The increase in durable life of the organic finish.

Changing "decrease" to "increase."
(Note: Reprinted copies of this article also require correction.)

●

Five Year Index to Technical Articles. *Corrosion*, 6, No. 12 (1950) Dec.
Page 11. May - Vol. 5 - No. 5. Topic of the Month—Corrosion in Sour Crude Storage Tanks—By Derk Holstein. 168.
Delete check mark at 8.5.
Insert check mark at 8.4.

●

Cathodic Protection Technical Practices. Bulletin III, Correlating Committee on Cathodic Protection *Corrosion*, **7**, No. 6, 202-209 (1951) June.
Page 208, Appendix B, Reference No. 39, Line 3: Change to read:

Corrosion, 3, 539 (1947).

Changing page number from 359 to 539.

●

A Proposed Standard Method for Measuring the Electrical Resistance of Pipe Line Coatings. By Walter F. Rogers, B. H. Davis, Lyle Sheppard, L. G. Sharpe, E. R. Allen, Donald Bond and P. T. Miller. *Corrosion*, **7**, No. 7, 245-251 (1951).
Substitute the equation below for the equation printed on Page 246, Column 2, immediately below Line 13:

$$K = \left(V - \frac{I\rho}{2\pi L} \ln \frac{r_2}{r_1}\right) \frac{L}{I}$$

The correction being that the ratio $\frac{L}{I}$ is substituted for the ratio $\frac{I}{N}$.

●

Corrosion Inhibition in Gas Condensate Wells By Intermittent Injection of Alkaline Solutions. By Charles C. Nathan. *Corrosion*, **7**, No. 11, 397-399 (1951) November.

Acknowledgment

The author wishes to acknowledge the cooperation of The Texas Company in the gathering of the data in this paper and in granting permission for its publication. Thanks are also due his colleagues, G. J. W. Murphy and L. M. Hubby, who aided materially in this work.

Topic of the Month

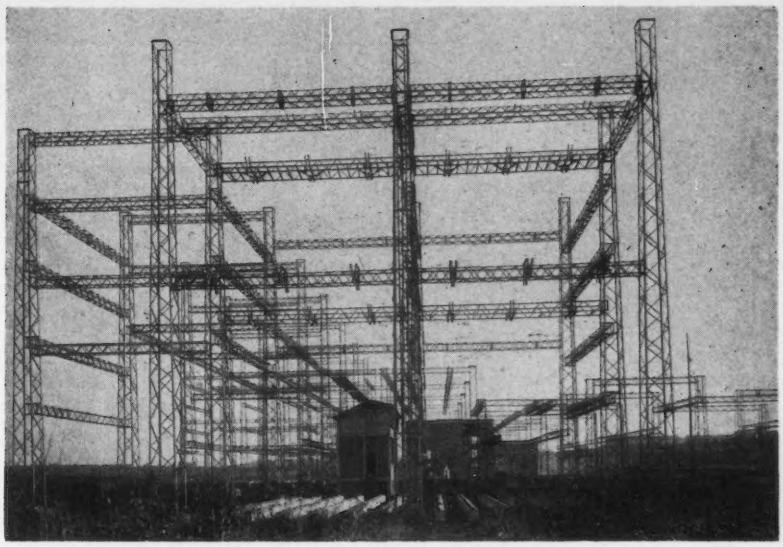


Figure 2—An open transformer station near Basel, Switzerland, which has been zinc-coated by the Electro-Pistole.

Versatile Electric Arc Metal Spraying Pistol Has High Potential

UP TO 50 pounds of metal per hour can be sprayed with the Schoop-Pistole* and temperatures up to 4000 degrees C are reported at the melting arc, sufficient to fuse and disperse such hard metals as molybdenum, chromium, tungsten and their alloys and apply them to the desired surfaces. Temperatures of the particles emitted from the arc are so high they will fuse into a glass or quartz surface forming a homogeneous, even metal film impossible to separate physically from the underlying material.

The inventor claims three times more by weight of zinc and aluminum may be deposited than with the gas-fired spray pistol.

In coating iron or steel a nitrated zone is reported at the interface of the body and coating material.

The pistol consists essentially of two wires (electrodes), the necessary electrical connections and an air jet, which blows through the arc created by the electrodes. (Se Figure 1 for details.) The wires are fed by action of a 35,000 rpm turbine actuated by the air before impinging on the arc.

* Invented by M. U. Schoop, Gladsbach Strasse, Zurich 5, Schweiz.

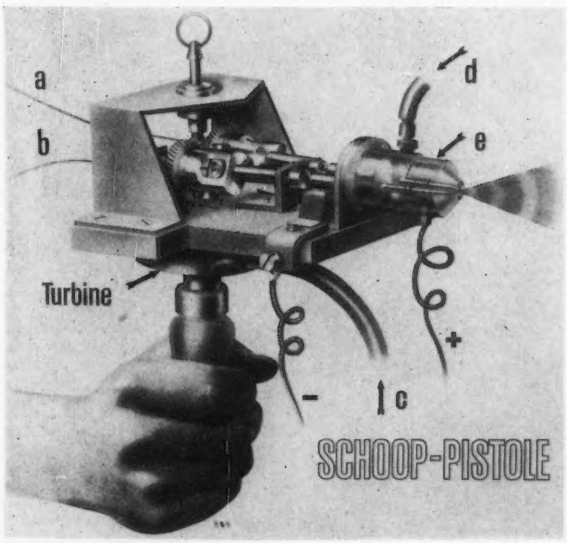


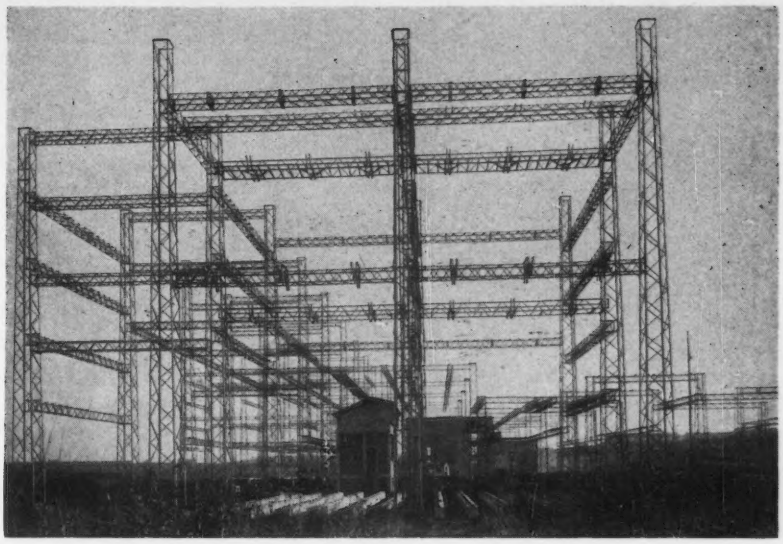
Figure 1—Operation of the Schoop-Pistole. a-b—The wires which form the electrodes. c—Compressed air tube leading to the 35,000 rpm turbine which operates the feed mechanism advancing the wires into the arc. d—Compressed air tube supplying air to the jet which disperses the molten metal in the arc. (In later models only one compressed air tube is used.) e—Control or cut-off valve or cap.

Only 50 Volts Used

In the electric pistol two wires of small transverse section are fed into contact at the point of the pistol. A 50-volt direct current is applied across the wires, the resulting short circuit melting the contact metal. A jet of air (four atmospheres) is directed at the arc, driving the molten material away and reducing it to very small particles. When contact is broken an arc is formed in which further fusion takes place. Tests with a rotating mirror show a recurring short-circuit also plays a role in the melting of the electrodes.

An investigative report by Prof. G. Korda (Paris) says in part: Since the arc is very short and (an air) stream of considerable strength passes through it, the inner arc is also strongly ionized and filled

Topic of the Month



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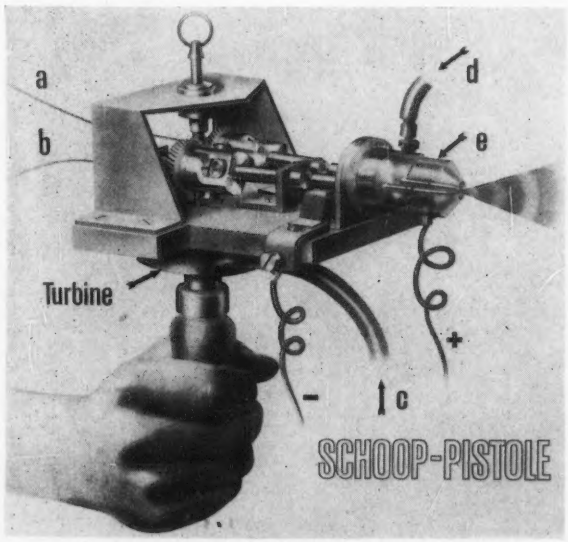

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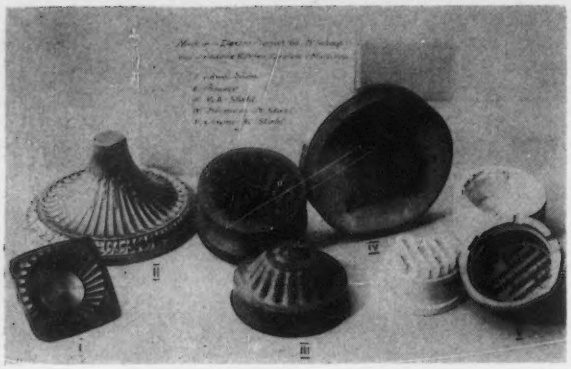

Figure 3—Forms and molds of hard metals. Item I, Swedish steel. Item II, bronze. Item III, 4A Steel. Item IV, Siemens M-steel. Item V, chrome nickel-steel.

with a dense metallic dust. Because of the small transverse section of the electrodes the arc cannot deviate.

Other Uses Given

Besides the obvious application of cathodic metals to steel (See Figure 2) the Electro-Pistole has been used to create dies for forming elastomer or ceramic parts by spraying on a pattern. (Examples of this kind of application are shown in Figure 3) Item II in this figure is a pedestal coated with bronze. Bronze coatings can be deposited, the inventor states, by using one electrode of copper and one of zinc. Other composite coatings also can be deposited.

The gun may be used also to spray metals onto textiles, where the metal particles penetrate the material and result in a product which is pliable, porous to air and which still partakes in large measure of the protective characteristics of the metal used. This process will produce fabrics impregnated to protect workers against damaging rays, heat and other destructive forces. The gun also has been used to coat with metals celluloid, paper and other combustible materials.

Discovered by Accident

Dr. Schoop says the idea for the electric pistol developed accidentally when he saw lead bullets fired from a target rifle by his children plate themselves on a garden wall in Garenne-Columbes, near Paris, where the family lived at the time.

Use of the electric pistol has progressed slowly for two apparent reasons, the inventor says. One, the higher initial cost of the equipment (three times that of the gas pistol) and the idea there is danger from the electric current. Dr. Schoop states that at 50 volts (the current used) there is no danger from either direct or alternating current.